

CLAIM AMENDMENTS

1 through 10 (canceled)

11. (Currently amended) A method for preparing a stable α -aluminum oxide protective layer for (i) an aluminum-containing alloy foil Fe-Al or Ni-Al having a thickness of 0.003 to 0.1 mm and an Al content of at least [[about]] 8% by weight or for (ii) an aluminum-containing alloy foil Fe-Cr-Al or Ni-Cr-Al having a thickness of 0.003 to 0.1 mm and an Al content of at least [[about]] 3% by weight, the method comprising the steps of:

(a) depositing Ni, Fe, Cr or Ti on the surface of the aluminum-containing alloy foil (i) or (ii) in an oxygen atmosphere to form on the aluminum-containing alloy foil, an oxide layer of a non-aluminum-containing oxide having a thickness of up to 1000 nm effective to suppress formation of metastable forms of aluminum oxide; and

(b) heating the aluminum-containing alloy foil (i) or (ii) on which is formed an oxide layer of a non-aluminum-containing oxide to a temperature of at least 800° C, whereby the oxide layer of the non-aluminum-containing oxide acts on the surface of the aluminum-containing alloy foil (i) or (ii) as a nucleating agent to promote formation of the stable α -aluminum oxide while suppressing formation of metastable forms of aluminum oxide.

1 12. (Currently amended) The method according to claim 11
2 wherein according to step (b) the aluminum-containing alloy foil
3 (i) or (ii) is heated to a temperature of 800 to 950° C.

1 13. (Currently amended) The method according to claim 11
2 wherein the non-aluminum containing oxide layer has a maximum
3 thickness of ~~5000-nm~~ 100 nm.

1 14. (Previously presented) The method according to claim
2 11 wherein according to step (a) the deposition is realized by
3 vaporization and condensing or by cathode sputtering.

1 15. (Previously presented) The method according to claim
2 11 wherein according to step (a) the deposition is carried out
3 through vaporization and condensing, cathode sputtering or galvanic
4 deposition.

1 16. (Currently amended) A method for preparing a stable
2 α -aluminum oxide protective layer for (i) an aluminum-containing
3 alloy foil Fe-Al or Ni-Al having a thickness of 0.003 to 0.1 mm and
4 an Al content of at least [[about]] 8% by weight or for (ii) an
5 aluminum-containing alloy foil Fe-Cr-Al or Ni-Cr-Al having a
6 thickness of 0.003 to 0.1 mm and an Al content of at least
7 [[about]] 3% by weight, the method comprising the steps of:

8 (a) treating the aluminum-containing alloy foil (i) or
9 (ii) in a chloride- or fluoride-containing medium, to selectively
10 oxidize the Fe, Ni or Cr in the aluminum-containing alloy foil (i)
11 or (ii) to form on the surface of the aluminum-containing alloy
12 foil (i) or (ii), an oxide layer of a non-aluminum-containing oxide
13 having a thickness of up to 1000 nm effective to suppress formation
14 of metastable forms of aluminum oxide wherein the non-aluminum-
15 containing oxide is iron oxide, nickel oxide or chromium oxide;
16 and;

17 (b) heating the aluminum-containing alloy foil (i) or
18 (ii) on which is formed an oxide layer of a non-aluminum-containing
19 oxide to a temperature of at least 800° C, whereby the oxide layer
20 of the non-aluminum-containing oxide acts on the surface of the
21 aluminum-containing alloy foil (i) or (ii) as a nucleating agent to
22 promote formation of the stable α -aluminum oxide while suppressing
23 formation of metastable forms of aluminum oxide.

1 17. (currently amended) The method according to claim 16
2 wherein according to step (a) the aluminum-containing alloy foil
3 (i) or (ii) is treated by introducing said alloy foil (i) or (ii)
4 into the chloride- or fluoride-containing medium over a period of
5 one minute to five hours.

1 18. (currently amended) The method according to claim 16
2 wherein according to step (a) the aluminum-containing alloy foil

3 (i) or (ii) is introduced into the chloride- or fluoride-containing
4 medium at temperatures between 30° and 100° C.

1 19. (currently amended) A method for preparing a stable
2 α -aluminum oxide protective layer for (i) an aluminum-containing
3 alloy foil Fe-Al or Ni-Al having a thickness of 0.003 to 0.1 mm and
4 an Al content of at least about 8% by weight or for (ii) an
5 aluminum-containing alloy foil Fe-Cr-Al or Ni-Cr-Al having a
6 thickness of 0.003 to 0.1 mm and an Al content of at least about 3%
7 by weight, the method comprising the steps of:

8 (a) heating the aluminum-containing alloy foil (i) or
9 (ii) to a temperature below 800° C to selectively oxidize the Fe,
10 Ni or Cr in the aluminum-containing alloy foil (i) or (ii) to form
11 on the surface of the aluminum-containing alloy foil (i) or (ii),
12 an oxide layer of a non-aluminum-containing oxide having a
13 thickness of up to 1000 nm effective to suppress formation of
14 metastable forms of aluminum oxide wherein the non-aluminum-
15 containing oxide is iron oxide, nickel oxide or chromium oxide; and

16 (b) heating the aluminum-containing alloy foil (i) or
17 (ii) on which is formed an oxide layer of a non-aluminum-containing
18 oxide to a temperature of at least 800° C, whereby the oxide layer
19 of the non-aluminum-containing oxide acts on the surface of the
20 aluminum-containing alloy foil (i) or (ii) as a nucleating agent to
21 promote formation of the stable alpha-aluminum oxide while
22 suppressing formation of metastable forms of aluminum oxide.

1 20. (currently amended) The method according to claim 19
2 wherein according to step (a) the aluminum-containing alloy foil
3 (i) or (ii) is heated to a temperature of 750° C.